

ABSTRACT A software management system of an intelligent power conditioner with backup system option employing trend analysis for early prediction of AC power line failure. An AC line power conditioner utilizing a microprocessor based control system for providing suitable alarms when an operating input AC line is defective or the trend of measured deficiencies predicts line power failure and for initiating an inverter control signal when an inverter module is attached as an option. The software controlled system analyzes the input and output voltages, provides analysis of input voltage surges and sags, measures transient amplitude and transient pulse width, counts glitches and dropouts, measures frequency, and identifies each defect and computes associated trends, stores all accumulated data in a Log Buffer for digital printout, and then provides appropriate alarms to a user. These alarms advise the user of imminent power failure and the ~~need for said~~ ^{need for an} inverter module, if ~~said~~ ^{an} inverter module, which can be attached by simple plug in, has not been attached thereto. If an inverter is unconnected, the addition of an inverter is suggested when defects are excessive, or when the trend indicates a higher than normal predilection to failure. A connected inverter module is activated when line defects prescribe such operation.